

WHAT IS CLAIMED IS:

1. A high-frequency wiring board comprising:

a dielectric substrate;

a first line conductor formed on one principal surface of the dielectric substrate;

a second line conductor formed on another principal surface of the dielectric substrate, with its one end arranged face to face with one end of the first line conductor;

a through conductor piercing through the dielectric substrate, for providing electrical connection between the one ends of the first and second line conductors;

a first coplanar ground conductor formed around the one end of the first line conductor of the one principal surface at a predetermined interval; and

a second coplanar ground conductor formed around the one end of the second line conductor of the other principal surface at a predetermined interval,

wherein the following relationship holds:

$$S < H/2$$

in which S represents an interval between the first line conductor and part of the first coplanar ground conductor located around each side of the first line conductor, as well as an interval between the second line conductor and part of the second coplanar ground conductor located around each side of the second line conductor, and H represents a distance between the first line

conductor and the second coplanar ground conductor facing each other via the dielectric substrate, as well as a distance between the second line conductor and the first coplanar ground conductor facing each other via the dielectric substrate.

2. The high-frequency wiring board of claim 1,

wherein the interval between the one end of the first line conductor and the first coplanar ground conductor, as well as the interval between the one end of the second line conductor and the second coplanar ground conductor, is made longer than the interval S, and equal to or shorter than three times the interval S.

3. The high-frequency wiring board of claim 2,

wherein a high-frequency signal to be transmitted through the first and second line conductors falls in a range from 55 to 80 GHz.

4. The high-frequency wiring board of claim 1,

wherein the interval between the one end of the first line conductor and the first coplanar ground conductor, as well as the interval between the one end of the second line conductor and the second coplanar ground conductor, is made shorter than the interval S.

5. The high-frequency wiring board of claim 4,  
wherein a high-frequency signal to be transmitted through the first and second line conductors falls in a range from 80 to 110 GHz.
6. A high-frequency wiring board comprising:  
a dielectric substrate composed of a plurality of dielectric layers stacked on top of each other;  
a first line conductor formed on one principal surface of the dielectric layer;  
a second line conductor formed on another principal surface, which is located differently from the one principal surface, of the dielectric layer, with its one end arranged face to face with one end of the first line conductor;  
a through conductor piercing through the dielectric layers, for providing electrical connection between the one ends of the first and second line conductors;  
a first coplanar ground conductor formed around the one end of the first line conductor of the one principal surface at a predetermined interval;  
a second coplanar ground conductor formed around the one end of the second line conductor of the other principal surface at a predetermined interval;  
a first inter-layer ground conductor which is formed between the dielectric layers interposed between the first line

conductor and the other principal surface; and

a second inter-layer ground conductor which is formed between the dielectric layers interposed between the second line conductor and the one principal surface,

wherein the following relationship holds:

$$S < H/2$$

in which  $S$  represents an interval between the first line conductor and part of the first coplanar ground conductor located around each side of the first line conductor, as well as an interval between the second line conductor and part of the second coplanar ground conductor located around each side of the second line conductor and  $H$  represents a distance between the first line conductor and the first inter-layer ground conductor facing each other via the dielectric layer, as well as a distance between the second line conductor and the second inter-layer ground conductor facing each other via the dielectric layer.

7. The high-frequency wiring board of claim 6,

wherein the interval between the one end of the first line conductor and the first coplanar ground conductor, as well as the interval between the one end of the second line conductor and the second coplanar ground conductor, is made longer than the interval  $S$ , and equal to or shorter than three times the interval  $S$ .

8. The high-frequency wiring board of claim 7,  
wherein a high-frequency signal to be transmitted through  
the first and second line conductors falls in a range from 55  
to 80 GHz.

9. The high-frequency wiring board of claim 6,  
wherein the interval between the one end of the first line  
conductor and the first coplanar ground conductor, as well as  
the interval between the one end of the second line conductor  
and the second coplanar ground conductor, is made shorter than  
the interval S.

10. The high-frequency wiring board of claim 9,  
wherein a high-frequency signal to be transmitted through  
the first and second line conductors falls in a range from 80  
to 110 GHz.